The inward groundwater gradient that must be maintained during uranium recovery operations and subsequent groundwater restoration at Burdock Wellfield 10 has the potential to pull the Triangle Pit water down-gradient at a faster rate than is already occurring under the natural groundwater flow regime. Because of exposure to the atmosphere, the Triangle Pit groundwater will have higher dissolved oxygen than is typical of Chilson groundwater. Impacts from Triangle Pit water on Burdock Wellfield 10 will be examined during the wellfield pump testing (Class III Area Permit Part II, Section F.5) and evaluated in the wellfield Injection Authorization Data Package Report (Class III Area Permit Part II, Section H.3.n). At present there is no monitoring well completed in the Fall River aquifer located between the Triangle Mine and Burdock Wellfield 10. However, both the NRC license and Part IX, Sections B.2.c and d of the Class III Area Permit require the Permittee to install a monitoring well SWNE Section 34 between the Triangle Mine and Burdock Wellfield 10.

The bottom of the Triangle Pit is below the potentiometric surface of the Fall River. The Triangle Pit is therefore hydraulically connected to the Fall River Formation.

Mine Pit

The water quality in the Triangle Mine Pit (Sub02) is characterized by moderately high TDS (2,900 to 3,900 mg/L), slightly alkaline pH (7.8 to 8.1), and calcium-sulfate type water.

5.3.3.7 Approach to Well Field Development with Respect to Historical Mine Workings

As described in Section 3.2.5.2 the former Darrow and Triangle open-pit mines and associated underground workings in the eastern portion of the permit area extracted ore from the Fall River Formation. There are no underground mines within the permit area that are not associated with, adjacent to, or extensions of the open pits, all of which are within the Upper Fall River Formation. These open-pit mines and underground workings did not penetrate the underlying Fuson Shale, which physically and hydraulically separates the Fall River from the underlying Chilson Member of the Lakota Formation across the entire permit area.

Powertech (USA) will not conduct ISR operations in ore bodies in the Fall River in the vicinity of the Darrow and Triangle pits. Powertech (USA) proposes to conduct ISR operations within the Chilson in this area. Because of the physical and hydraulic separation of the Chilson from the overlying Fall River Formation, ISR operations in the Chilson will not affect the Fall River or create or enhance migration of constituents of concern from the surface (open-pit) or underground mines.

Powertech (USA) also will install and sample operational monitor wells in the Fall River, Chilson, and alluvium between the surface (open-pit) mines and well field areas. For additional information, refer to Section 5.5.2.4.